MECHANICALLY-STABLE BJT WITH REDUCED BASE-COLLECTOR CAPACITANCE

ABSTRACT OF THE DISCLOSURE

A bipolar junction transistor (BJT) requires the fabrication of a BJT structure and of a support post which is adjacent to, but physically and electrically isolated from, the BJT structure. The BJT structure includes a semi-insulating substrate, a subcollector, a collector, a base, and an emitter. Metal contacts are formed on the subcollector and emitter to provide collector and emitter terminals. Contact to the structure's base is accomplished with a metal contact which extends from the top of the support post to the edge of the base nearest the support post. The contact bridges the physical and electrical separation between the support post and the base and provides a base terminal for the device. The base contact need extend over the edge of the base by no more than the transfer length associated with the fabrication process. This results in the smaller base contact area over the collector than would otherwise be necessary, and a consequent reduction in base-collector capacitance. The invention is particularly useful when forming heterojunction bipolar transistors (HBTs), built on a compound semiconductor substrate such as indium phosphide (InP).